CLEAN VERSION OF THE ENTIRE SET OF CLAIMS

1   1.   A method for communicating information in a network, comprising:

2   a) sending a request for information about a destination node from a source node to a

3   server node that responds to such requests on behalf of the destination node;

4   b) forwarding the request from the server node to the destination node;

5   c) sending a response to the request from the destination node to the server node; and

6   d) forwarding the response from the server node to the source node.

1   2.   (Amended) The method of claim 1, wherein sending a request for information about a

2   destination node from a source node to a server node that responds to such requests on behalf of

3   the destination node comprises sending a Next Hop Resolution Protocol (NHRP) resolution

4   request from a NHRP capable source node to a NHRP server node that responds to such requests

5   on behalf of the destination node.

1   3.   The method of claim 2, wherein forwarding the request from the server node to the

2   destination node comprises forwarding the NHRP resolution request from the NHRP server node

3   to the destination node.

1   4.   The method of claim 3, wherein sending a response to the request from the destination

2   node to the server node comprises sending a NHRP resolution reply to the NHRP resolution

3   request from the destination node to the NHRP server node.

1   5.   The method of claim 4, wherein forwarding the response from the server node to the

2   source node comprises forwarding the NHRP resolution reply from the NHRP server node to the

3   NHRP capable source node.

1   6.   A method for communicating internetwork layer address to subnetwork layer address

2   resolution information between peer stations in a nonbroadcast, multiple access subnetwork,

3   comprising:

4   a) generating at a source station a next hop resolution protocol (NHRP) resolution request

5   to obtain internetwork layer address to subnetwork layer address resolution information for a

6   destination station, the NHRP resolution request specifying the internetwork layer address for the

7   destination station;

8   b) transmitting the NHRP resolution request to a next hop resolution protocol server

9   (NHS) within the nonbroadcast multiple access subnetwork that serves the destination station;

10   c) determining at the NHS to forward the NHRP resolution request to the destination

11   station;

12   d) generating at the destination station a NHRP resolution reply providing the

13   internetwork layer address to NBMA subnetwork layer address resolution information;

14   e) transmitting the NHRP resolution reply from the destination station to the NHS; and

15   f) transmitting the NHRP resolution reply from the NHS to the source station.

1   7.   The method of claim 6, wherein determining at the NHS to forward the NHRP resolution

2   request to the destination station further comprises determining that the destination station

3   previously transmitted a NHRP registration request to the NHS requesting the NHS to forward

4   any NHRP resolution request that specified the internetwork layer address for the destination

5   station to the destination station.

1   8.   The method of claim 7, wherein determining that the destination station previously

2   transmitted a NHRP registration request to the NHS requesting the NHS to forward any NHRP

3   resolution request that specified the internetwork layer address for the destination station to the

4   destination station further comprises determining that the destination station previously

5   transmitted a NHRP registration request to the NHS, the NHRP registration request specifying a

6   unique time/length/value (TLV) extension value that the NHS recognized as requesting the NHS

7   to forward any NHRP resolution request that specified the internetwork layer address for the

8   destination station to the destination station.

1   9.   The method of claim 6, wherein determining at the NHS to forward the NHRP resolution

2   request to the destination station further comprises determining that the NHS was previously

3   configured to request the NHS to forward any NHRP resolution request that specified the

4   internetwork layer address for the destination station to the destination station.

1   10.   The method of claim 6, wherein determining at the NHS to forward the NHRP resolution

2   request to the destination station further comprises determining that the NHS previously received

3   a communication via an internetworking protocol instructing the NHS to forward any NHRP

4   resolution request that specified the internetwork layer address for the destination station to the

5   destination station.

1   11.   A method for communicating internetwork layer address to subnetwork layer address

2   resolution information between peer stations in a nonbroadcast, multiple access subnetwork,

3   comprising:

4   a) generating at a source station a next hop resolution protocol (NHRP) resolution request

5   to obtain internetwork layer address to subnetwork layer address resolution information for a

6   destination station, the NHRP resolution request specifying the internetwork layer address for the

7   destination station;

8   b) transmitting the NHRP resolution request to a next hop resolution protocol server

9   (NHS) within the nonbroadcast multiple access subnetwork that serves the destination station;

10   c) determining at the NHS to forward the NHRP resolution request to the destination

11   station;

12   d) determining at the destination station whether to receive or reject the NHRP resolution

13   request forwarded from the NHS;

14   e) generating at the destination station a NHRP resolution reply providing the

15   internetwork layer address to NBMA subnetwork layer address resolution information if the

16   destination station determined to receive the NHRP resolution reqeuest forwarded from the NHS;

17   f) transmitting the NHRP resolution reply from the destination station to the NHS; and

18   g) transmitting the NHRP resolution reply from the NHS to the source station.

1   12.   The method of claim 11, wherein determining at the destination station whether to

2   receive or reject the NHRP resolution request forwarded from the NHS comprises determining at

3   the destination station whether to receive or reject the NHRP resolution request forwarded from

4   the NHS based on management signaling.

1   13.   The method of claim 11, wherein determining at the destination station whether to

2   receive or reject the NHRP resolution request forwarded from the NHS comprises determining at

3   the destination station whether to receive or reject the NHRP resolution request forwarded from

4   the NHS based on user configuration.

1   14.   An article of manufacture comprising a computer readable medium having computer

2   readable program code means embodied thereon for communicating information in a network,

3   comprising:

4   computer readable program code means for receiving a request for information about a

5   destination node from a source node at a server node that responds to such requests on behalf of

6   the destination node;

7   computer readable program code means for forwarding the request from the server node

8   to the destination node;

9   computer readable program code means for receiving a response to the request from the

10   destination node at the server node; and

11   computer readable program code means for forwarding the response from the server node

12   to the source node.

1   15.   An article of manufacture comprising a computer readable medium having computer

2   readable program code means embodied thereon for communicating internetwork layer address

3   to subnetwork layer address resolution information between peer stations in a nonbroadcast,

4   multiple access subnetwork, comprising:

5   computer readable program code means at a next hop resolution protocol server (NHS)

6   within the nonbroadcast multiple access subnetwork that serves a destination station, the

7   computer readable program code means receiving a next hop resolution protocol (NHRP)

8   resolution request from a source station to obtain internetwork layer address to subnetwork layer

9   address resolution information for a destination station, the NHRP resolution request specifying

10   the internetwork layer address for the destination station;

11   computer readable program code means for determining at the NHS to forward the

12   NHRP resolution request to the destination station;

13   computer readable program code means at the NHS for receiving from the destination

14   station a NHRP resolution reply providing the internetwork layer address to NBMA subnetwork

15   layer address resolution information; and

16   computer readable program code means at the NHS for transmitting the NHRP resolution reply

17   from the NHS to the source station.

1   16.   A method for communicating internetwork layer address to subnetwork layer address

2   resolution information in a nonbroadcast, multiple access subnetwork, comprising:

3   a) generating at a source station a next hop resolution protocol (NHRP) resolution request

4   to obtain internetwork layer address to subnetwork layer address resolution information for a

5   destination station, the NHRP resolution request specifying an internetwork layer address for the

6   destination station;

7   b) transmitting the NHRP resolution request to a next hop resolution protocol server

8   (NHS) within the nonbroadcast multiple access subnetwork that serves a plurality of destination

9   stations sharing the internetwork layer address;

10   c) determining at the NHS to forward the NHRP resolution request to a one of the

11   plurality of destination stations according to an arbitration scheme;

12   d) generating at the one of the plurality of destination stations a NHRP resolution reply

13   providing the internetwork layer address to NBMA subnetwork layer address resolution

14   information;

15   e) transmitting the NHRP resolution reply from the one of the plurality of destination

16   stations to the NHS; and

17   f) transmitting the NHRP resolution reply from the NHS to the source station.

1   17.   A method of communicating internetwork layer address to subnetwork layer address

2   resolution information, comprising:

3   a) generating at a source station a next hop resolution protocol (NHRP) resolution request

4   to obtain internetwork layer address to subnetwork layer address resolution information for a

5   destination station, the NHRP resolution request specifying an internetwork layer address for the

6   destination station;

7   b) transmitting the NHRP resolution request to a next hop resolution protocol server

8   (NHS) within the nonbroadcast multiple access subnetwork that serves a plurality of destination

9   stations sharing the internetwork layer address;

10   c) determining at the NHS to forward the NHRP resolution request to one of the plurality

11   of destination stations according to an arbitration scheme;

12   d) generating at the one of the plurality of destination stations one of: a NHRP resolution

13   reply providing the internetwork layer address to NBMA subnetwork layer address resolution

14   information; and a negative NHRP resolution reply that fails to provide the internetwork layer

15   address to NBMA subnetwork layer address resolution information;

16   e) transmitting the NHRP resolution reply from the one of the plurality of destination

17   stations to the NHS;

18   f) repeating c through e until one of: the NHRP resolution reply provides the internetwork

19   layer address to NBMA subnetwork layer address resolution information; and the last of the one

20   of the plurality of destination stations transmits the NHRP resolution reply to the NHS; and

21   f) transmitting the NHRP resolution reply from the NHS to the source station.

1   18.   An article of manufacture comprising a computer readable medium having computer

2   readable program code means embodied thereon for communicating internetwork layer address

3   to subnetwork layer address resolution information, comprising:

4   computer readable program code means for generating at a source station a next hop resolution

5   protocol (NHRP) resolution request to obtain internetwork layer address to subnetwork layer

6   address resolution information for a destination station, the NHRP resolution request specifying

7   an internetwork layer address for the destination station;

8   computer readable program code means for transmitting the NHRP resolution request to a next

9   hop resolution protocol server (NHS) within the nonbroadcast multiple access subnetwork that

10   serves a plurality of destination stations sharing the internetwork layer address;

11   computer readable program code means for determining at the NHS to forward the NHRP

12   resolution request to a one of the plurality of destination stations according to an arbitration

13   scheme;

14   computer readable program code means for generating at the one of the plurality of destination

15   stations a NHRP resolution reply providing the internetwork layer address to NBMA subnetwork

16   layer address resolution information;

17   computer readable program code means for transmitting the NHRP resolution reply from the one

18   of the plurality of destination stations to the NHS; and

19   computer readable program code means for transmitting the NHRP resolution reply from the

20   NHS to the source station.

1   19.   A method for communicating information in a network, comprising:

2   a) receiving a request for information about a destination node from a source node at a

3   server node that responds to such requests on behalf of the destination node;

4   b) forwarding the request from the server node to the destination node;

5   c) receiving a response to the request from the destination node at the server node; and

6   d) forwarding the response from the server node to the source node.

1   20.   A method for communicating internetwork layer address to subnetwork layer address

2   resolution information in a nonbroadcast, multiple access subnetwork, comprising:

3   a) receiving at a next hop resolution protocol server (NHS) a next hop resolution protocol

4   (NHRP) resolution request that was generated and transmitted by a source station to obtain

5   internetwork layer address to subnetwork layer address resolution information for a destination

6   station that is served by the NHS, the NHRP resolution request specifying the internetwork layer

7   address for the destination station;

8   b) determining at the NHS to forward the NHRP resolution request to the destination

9   station;

10   c) receiving an NHRP resolution reply providing the internetwork layer address to

11   NBMA subnetwork layer address resolution information generated and transmitted by the

12   destination station to the NHS; and

13   d) transmitting the NHRP resolution reply from the NHS to the source station.